इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”
Mazdoor Kisan Shakti Sangathan
“The Right to Information, The Right to Live”

“पुराने को छोड नये के तरफ”
Jawaharlal Nehru
“Step Out From the Old to the New”

IS 2819 (1983): Braided cotton cord [TXD 9: Cordage]

“ज्ञान से एक नये भारत का निर्माण”
Satyanarayan Gangaram Pitroda
“Invent a New India Using Knowledge”

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”
Bhartṛhari—Nītiśatakam
“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

IS : 2819 - 1983

(Reaffirmed 2005)

Indian Standard

SPECIFICATION FOR
BRAIDED COTTON CORD

(Second Revision)

UDC 677·752 : [677·21]

© *Copyright* 1983

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 3 *May* 1983

Indian Standard
SPECIFICATION FOR BRAIDED COTTON CORD
(Second Revision)

Cordage Sectional Committee, TDC 14

Chairman	*Representing*
Shri P. K. Sur	The Ganges Rope Company Limited, Howrah
Members	
Shri P. K. Gupta (*Alternate* to Shri P. K. Sur)	
Lt-Col Ashok Coomar	Ministry of Defence (DGI)
Shri S. P. Chakraborty (*Alternate*)	
Shri A. T. Basak	Directorate General of Supplies & Disposals (Inspection Wing), New Delhi
Shri A. Biswas	Rail India Technical & Economic Services Ltd, New Delhi
Shri K. K. Chatterjee	Office of the Jute Commissioner, Calcutta
Deputy Chief Mechanical Engineer (Marine), North Eastern Railway, Patna	Railway Board (Ministry of Railways)
Shri R. N. Ghosal	Calcutta Port Trust, Calcutta
Shri S. K. Mukherjee (*Alternate*)	
Shri A. Ghosh	National Test House, Calcutta
Shri Sekhar Guha	Eskaps (India) Pvt Limited, Calcutta
Shri N. B. Sengupta (*Alternate*)	
Shri A. C. Mathur	Ministry of Defence (R & D)
Shri R. Ghosh (*Alternate*)	
Shri G. V. Medhi	Garware Nylons Ltd, Bombay
Shri R. D. Oberoi	Naval Headquarters (Ministry of Defence)
Shri S. L. Naithani (*Alternate*)	
Shri G. N. Prabhu	Coir Board, Ernakulam
Shri V. Abdul Majeed (*Alternate*)	
Capt B. R. Rao	The Scindia Steam Navigation Co Ltd, Bombay
Shri Vijay Satkalmi	Neomar Limited, Vadodara
Shri Nirmal K. Somani	Indian Rope Manufacturers' Association, Calcutta
Shri T. Bhattacharya (*Alternate*)	

(*Continued on page* 2)

© *Copyright* 1983
INDIAN STANDARDS INSTITUTION
This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(*Continued from page* 1)

Members	*Representing*
CAPT V. SUBRAMANIAN	Shipping Corporation of India Ltd, Bombay
CAPT S. B. KUNDERGI (*Alternate*)	
SHRI R. M. TELANG	Garware Wall Ropes Ltd, Bombay
SHRI A. K. KAPUR (*Alternate*)	
SHRI KANTILAL G. THANAWALA	M. Best Cotton Rope Manufacturing Co, Bombay
SHRI MADHUKANT G. THANAWALA (*Alternate*)	
SHRI J. M. WASDEV	Ministry of Defence (DPIN)
SHRI V. P. CHANDNA (*Alternate*)	
SHRI S. M. CHAKRABORTY, Director (Tex)	Director General, ISI (*Ex-officio Member*)

Secretary
SHRI A. R. BANERJEE
Deputy Director (Tex), ISI

Indian Standard

SPECIFICATION FOR BRAIDED COTTON CORD

(Second Revision)

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 26 November 1982, after the draft finalized by the Cordage Sectional Committee had been approved by the Textile Division Council.

0.2 This standard was first published in 1964. The present revision of the standard has been taken up in the light of the experience gained since its first revision in 1975. This revision is mainly based on the technical data supplied by the Chief Inspectorate of Textiles and Clothing (Ministry of Defence), Kanpur.

0.3 The Standards of Weights and Measures Act, 1976 stipulates the use of International System of Units in the country; in order to familiarize the industry with this system, the recommended SI units for use in the textile industry are given in Appendix A.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements of two varieties of braided cotton cord. The 2 mm dia cord is suitable for lacing of sleeping bags and avalanche cord, and 4 mm dia cord is suitable for crash helmets for motorcycle riders.

---

*Rules for rounding off numerical values (*revised*).

2. MATERIAL

2.1 Cotton yarn of following counts conforming to IS : 171-1977* may be found suitable:

For braiding	15 tex × 2 ($40^s/2$)
For core formation	60 tex × 2 ($10^s/2$)

3. REQUIREMENTS

3.1 Cord — The cord shall be uniformly braided. It shall be free from knots, kinks, broken or loose ends projecting from the cord.

3.2 Skein — Each skein of braided cord shall be continuous throughout its length and shall not contain any loose ends splices or joints.

3.3 The braided cord shall meet the requirements given in Table 1.

4. MARKING AND PACKING

4.1 Each skein shall have a label securely attached to it on which the following information be legibly marked:

a) Nominal diameter of the cord (mm);
b) Length of skein (m);
c) Manufacturer's name, initials, or trade-mark; and
d) Year of manufacture.

4.1.1 Each skein may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

4.2 The braided cotton cord shall be packed in accordance with IS : 3256-1980† unless otherwise specified in the contract or order.

---

*Specification for grey cotton yarn (*second revision*).

†Code for inland packaging of ropes and cordage (*first revision*).

TABLE 1 REQUIREMENTS OF BRAIDED COTTON CORD

(*Clause* 3.3)

Sl No.	Characteristic	Variety 1	Variety 2	Method of Test
i)	Nominal dia (mm)	2	4	IS : 7071 (Part III)-1974[*]
ii)	No. of yarns per strand	3	8	—
iii)	No. of yarns in the core of the cord	—	8	—
iv)	No. of strands in braid of the cord	16	16	Appendix A of IS : 1402-1979[†]
v)	Length of skein, *Min*	40	40	IS : 7071 (Part II)-1974[‡]
vi)	Linear density, ktex	2·5 ± 5 percent	6·5 ± 5 percent	IS : 7071 (Part II)-1974[‡]
vii)	Breaking load on 60 cm test length, *Min*	215 N (average)	480 N (average) 460 N, *Min* for individual test result	IS : 1670-1970[§]
viii)	Elongation at break, *Max*	15	40	IS : 1670-1970[§]
ix)	Scouring loss, *Max*	←—2 percent——→		IS : 1383-1977[‖] (Severe method)
x)	Colour fastness of dyed cord to:			
	Light	←—4 or better——→		IS : 2454-1967[¶]
	Washing : Test 3	←—4 or better——→		IS : 764-1966[**]

[*] Methods of physical test for ropes and cordages: Part III Diameter, circumference and lay.

[†] Braided cotton cord for aerospace purposes (*first revision*).

[‡] Methods of physical test for ropes and cordages: Part II Mass, length and linear density.

[§] Method for determination of breaking load, elongation at break and tenacity of yarns (*first revision*).

[‖] Method for determination of scouring loss in grey and finished cotton textile materials (*first revision*).

[¶] Method for determination of colour fastness of textile materials to artificial light (xenon lamp).

[**] Method for determination of colour fastness of textile materials to washing: Test 3 (*second revision*).

5. SAMPLING

5.1 Lot — The quantity of cord of the same size and of one definite quality delivered to one buyer against one despatch note, shall constitute the lot.

5.2 The conformity of the lot to the requirements of this standard shall be determined on the basis of tests carried out on the sample selected from the lot.

5.3 Unless otherwise agreed to between the buyer and the seller, the number of skeins to be selected at random from the lot shall be in accordance with col 2 of Table 2. These skeins shall be selected from at least 10 percent of the package and equal number of skeins, as far as possible, shall be drawn at random from each package.

TABLE 2 NUMBER OF SKEINS TO BE SELECTED IN THE SAMPLE

No. of Skeins in the Lot (1)	No. of Skeins in the Sample (2)
Up to 100	3
101 to 300	4
301 ,, 500	5
501 ,, 1 000	7
1 001 and above	10

5.4 For evaluating linear density, breaking load, elongation at break, length of skein, scouring loss and colour fastness, the number of skeins selected under **5.3** shall constitute the test sample. The required test specimens shall be drawn from each of the skeins and subjected to the corresponding tests.

5.5 Criteria for Conformity — The lot shall be considered as conforming to the requirements of this standard if the following conditions are satisfied:

a) From the observed values of linear density, the average, $\bar{X}$ and the range R are calculated and the values of the expressions ($\bar{X} \pm 0{\cdot}4\ R$) lie within the specified limits.

b) From the observed values of breaking load and length of skein, the average $\bar{X}$ and the range R are calculated and the value of the expression ($\bar{X} - 0{\cdot}4$) is greater than or equal to the specified minimum value.

c) All the test specimens satisfy the colour fastness ratings for the various agencies as specified.

d) From the observed values of scouring loss percent and elongation at break percent, the average $\bar{X}$ and the range R are calculated and value of the expression ($\bar{X} + 0{\cdot}4\,R$) is less than or equal to the specified maximum value.

NOTE 1 — Average $\bar{X}$ is the value obtained by dividing the sum of the observed values by the number of tests.

NOTE 2 — Range R is the difference between the maximum and the minimum in a set of observed values.

APPENDIX A

(*Clause* 0.3)

RECOMMENDED SI UNITS FOR TEXTILES

Sl No.	*Characteristic*	*SI Unit*		*Application*
		Unit(s)	Abbreviation(s)	
(1)	(2)	(3)	(4)	(5)
1.	Length	Millimetre	mm	Fibres
		Millimetre, centimetre	mm, cm	Samples, test specimens (as appropriate)
		Metre	m	Yarns, ropes, cordage, fabrics

Sl No.	*Characteristic*	*SI Unit*		*Application*
		Unit(s)	Abbreviation(s)	
(1)	(2)	(3)	(4)	(5)
2.	Width	Millimetre	mm	Narrow fabrics
		Centimetre	cm	Other fabrics
		Millimetre, centimetre	mm, cm	Samples, test specimens (as appropriate) Carpets, druggets, *DURRIES* (as appropriate)
3.	Thickness	Micrometre (micron)	µm	Delicate fabrics
		Millimetre	mm	Other fabrics, carpets, felts
4.	Linear density	Tex	tex	Yarns
		Millitex	mtex	Fibres
		Decitex	dtex	Filaments, filament yarns
		Kilotex	ktex	Slivers, ropes, cordage
5.	Diameter	Micrometre (micron)	µm	Fibres
		Millimetre	mm	Yarns, ropes, cordage
6.	Circumference	Millimetre	mm	Ropes, cordage
7.	Threads in fabric:			Woven fabrics (as appropriate)
	a) Lengthwise	Number per centimetre	ends/cm	
		Number per decimetre	ends/dm	
	b) Widthwise	Number per centimetre	picks/cm	
		Number per decimetre	picks/dm	

Sl No.	*Characteristic*	*SI Unit*		*Application*
		Unit(s)	Abbreviation(s)	
(1)	(2)	(3)	(4)	(5)
8.	Warp threads in loom	Number per centimetre	ends/cm	Reeds
9.	Stitches in knitted fabric:			Knitted fabrics (as appropriate)
	a) Lengthwise	Courses per centimetre	courses/cm	
		Courses per decimetre	courses/dm	
	b) Widthwise	Wales per centimetre	wales/cm	
		Wales per decimetre	wales/dm	
10.	Stitch length	Millimetre	mm	Knitted fabrics, made-up fibres
11.	Mass per unit area	Grams per square metre	g/m^2	Fabrics
12.	Mass per unit length	Grams per metre	g/m	Fabrics
13.	Twist	Turns per centimetre	turns/cm	Yarns, ropes, cordage (as appropriate)
		Turns per metre	turns/m	
14.	Test or gauge length	Millimetre, centimetre	mm, cm	Fibre, yarn and fabric specimens (as appropriate)
15.	Breaking load	Millinewton	mN	Fibres, delicate yarns (individual or skeins)
		Newton	N	Strong yarns (individual or skeins), ropes, cordage, fabrics

Sl No.	*Characteristic*	*SI Unit*		*Application*
		Unit(s)	Abbreviation(s)	
(1)	(2)	(3)	(4)	(5)
16.	Breaking length	Kilometre	km	Yarns
17.	Tenacity	Millinewton per tex	mN/tex	Fibres, yarns (individual or skeins)
18.	Twist factor or twist multiplier	Turns per centimetre × square root of tex	$\text{turns/cm} \times \sqrt{\text{tex}}$	Yarns (as appropriate)
		Turns per metre × square root of tex	$\text{turns/m} \times \sqrt{\text{tex}}$	
19.	Bursting strength	Newton per square centimetre	N/cm^2	Fabrics
20.	Tear strength	Millinewton, newton	mN, N	Fabrics (as appropriate)
21.	Pile height	Millimetre	mm	Carpets
22.	Pile density	Mass of pile yarn in grams per square metre per millimetre pile height	$\text{g/m}^2\text{/mm}$ pile height	Pile carpets
23.	Elastic modulus	Millinewton per tex per unit deformation	mN/tex/unit deformation	Fibres, yarns, strands

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

INDIAN STANDARDS INSTITUTION

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones : 26 60 21, 27 01 31 **Telegrams : Manaksanstha**

Regional Offices:

		Telephone
Western : Novelty Chambers, Grant Road	BOMBAY 400007	89 65 28
Eastern : 5 Chowringhee Approach	CALCUTTA 700072	27 50 90
Southern : C. I. T. Campus	MADRAS 600113	41 24 42
Northern : B69, Phase VII	S.A.S. NAGAR (MOHALI) 160051	8 78 26

Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur	AHMADABAD 380001	2 03 91
'F' Block, Unity Bldg, Narasimharaja Square	BANGALORE 560002	22 48 05
Gangotri Complex, Bhadbhada Road, T. T. Nagar	BHOPAL 462003	6 27 16
22E Kalpana Area	BHUBANESHWAR 751014	5 36 27
5-8-56C L. N. Gupta Marg	HYDERABAD 500001	22 10 83
R 14 Yudhister Marg, C Scheme	JAIPUR 302005	6 98 32
117/418 B Sarvodaya Nagar	KANPUR 208005	4 72 92
Patliputra Industrial Estate	PATNA 800013	6 28 08
Hantex Bldg (2nd Floor), Rly Station Road	TRIVANDRUM 695001	32 27

Printed at Arcee Press, New Delhi, India